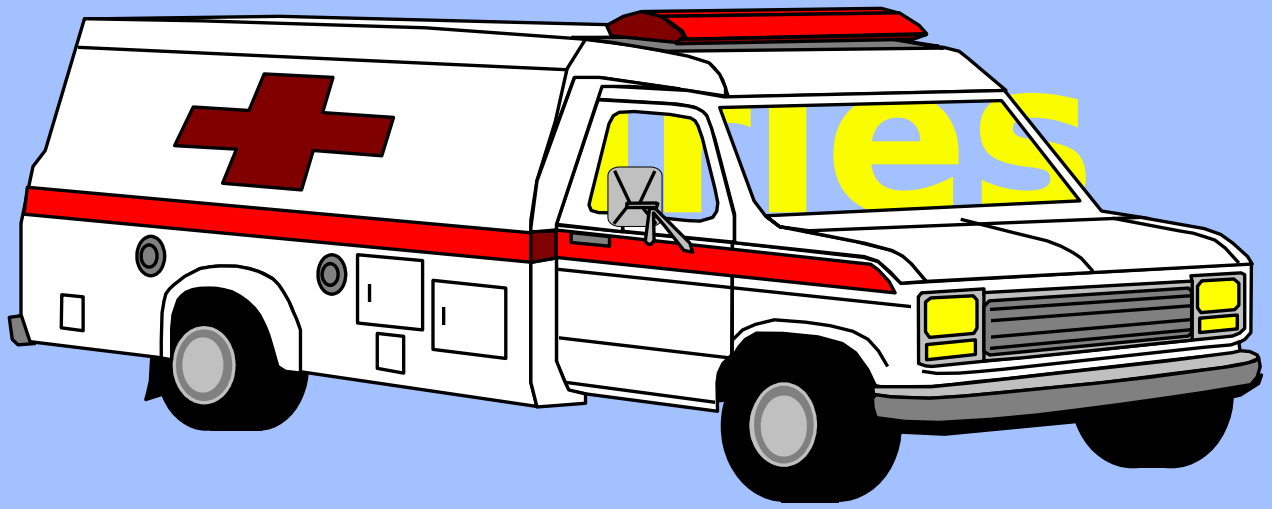
Soft Tissue Injuries



Lesson objective:

Recognize closed and open soft tissue injuries and state the procedure for treating each type.

Overview:

- Closed Soft-Tissue Injuries
- Open Soft-Tissue Wounds
- Special Consideration

CLOSED SOFT TISSUE INJURIES

Closed Soft Tissue Injuries

Closed soft tissue injuries occur beneath the skin, there may be underlying damage to the skin itself however the integrity of the skin is not compromised. (Crushing type injury from blunt trauma)

Contusion

- Commonly called - bruise
- Crushing Tissue under the skin
- Caused by blunt object

Signs & Symptoms: (minimal)

- Swelling
- Pain
- Ecchymosis
  - A small hemorrhagic spot
  - Black and blue mark: discoloration
  - Results of blood and plasma coming to surface

Hematoma

- Also called a Blood tumor
- A localized collection of blood
- Most severe closed soft - tissue injury
- Result from large blood vessel damage and rapid bleeding
- Possible shock

S&S

- Swelling
- Pain
- Ecchymosis
- Lumps - actual hematoma

Crushing Injuries

- Great force applied for long periods
- The Key is period of time
- Continued compression will produce further destruction
- Compression also from swelling
- Greater force, greater risk to deeper structures
- Always assess for serious hidden injuries, bleeding and shock

Treatment of Closed Wounds:

- Always start with BSI procedures and your ABC’s.

Think of ICES:

- ICE
- Compression
- Elevation
- Splint

ICE:

- Not directly on skin
- Cause blood vessels to constrict

Compression:

- Pressure dressing or manual compression
- Slows bleeding

Elevation:

- Above heart
- Decreases swelling

Splint:

- Immobilize extremities above and below injury
- Controls bleeding and reduces pain

Be alert for signs of developing shock and treat if suspected.

Open Soft-Tissue Wounds
- Break in the skin or mucous membranes.

There are four types.

Abrasions

- Loss of portion of outer skin layer
- Friction rub
- Painful (nerves intact)
- Blood may ooze from capillaries
- AKA: road rash, road burn, strawberry, or mat burn

Lacerations

- Cut caused by a sharp object or blunt force.
- Smooth (linear or regular) or jagged (stellate or irregular)
- Depth varies
- Bleeding may be severe

Avulsion

- Tissue flap torn loose completely or left hanging
- Bleeding will be significant

If still attached

- Circulation is provided through the flap
- Replace tissue to original position
- Bandage

If torn free

- First control bleeding from avulsion location.
- Collect part and, if an extremity, splint.
- Put in dry sterile dressing and plastic bag.
- Place in cool container.
- Do not soak in water or saline or allow to freeze.
- Bring to emergency room.

Penetrating Wounds

- **Common Causes:**
  - **Knife**
  - **Nail/ice pick**
  - **Splinter**
  - **Bullet or projectile**

Signs and Symptoms:

- Minimal external bleeding
- Internal damage and bleeding can be severe
- Rapid bleeding can cause shock and death

- Always suspect extensive internal bleeding
- Always assess for multiple injuries and exit wounds

Gunshot wound characteristics

Velocity of Bullets:

- High velocity/high energy (rifle)
- High velocity/medium energy (handgun, shotgun)
- Low velocity (knife, schrapnel)
- Degree of damage is proportional (higher velocities cause more damage)

Number of Shots:

- Multiple sites and exit wounds
- Careful inspection
- Expose the body

Caliber of Bullet:

- Small caliber may be deflected in the body
- Beware of associated injuries

Record and report to help emergency room personnel

- Circumstances of injury
- Number of wounds vs. shots fired
- Patient's condition and treatment
- Important because of legalities

Treatment of Open Wounds: (General Rules)

- Always start with BSI and ABC's
- Expose the injuries or body
- Control bleeding
- Prevent contamination
- Immobilize Part by Splinting
- Evaluate and treat for shock if suspected

Control bleeding

- Direct pressure
- Elevation
- Pressure points
- Tourniquet application

Principles of Bandaging

- **Dressing: Any material applied to a wound in an effort to control bleeding and prevent further contamination.**

  (Dressings should be sterile.)

Principles of Bandaging

- **Bandage: Any material used to hold a dressing/or splint in place.**

(Bandages should be clean but may not be sterile.)

Four basic rules to dressing application:

- Use sterile or very clean materials
- Cover the entire wound
- Control bleeding with applied pressure
- Never remove dressing

Four basic rules to bandaging:

- Do not bandage too tightly
- Do not bandage too loosely
- Do not leave loose ends
- Do not cover tips of fingers and toes

- **Direct Pressure**
- **Elevation**
- **Pressure points**
- **Tourniquet application**
  - **Not below elbow or knee**
  - **Use wide enough bandages**
  - **Appropriate victim marking (TK/Time)**
  - **Last resort**

Prevent contamination

- All open wounds are contaminated and at risk for infection
- Applying a dry sterile dressing
- Do not remove embedded material

Immobilize Part by splinting

- Better control of bleeding
- Reduces pain
- Prevents further injury

Evaluate and treat for shock if suspected.

Special Consideration

Chest Injuries (review from Respiratory Emergencies)

Pneumothorax - Penetrating wounds result in air entering the chest cavity from the outside.

- Air enters the chest cavity though the opening.
- Air fills the pleural space not allowing lung(s) to expand.
- “Sucking Chest Wound” because of sound.

Hemothorax - Penetrating or blunt trauma results in blood collecting in the chest cavity

- Blood enters the chest cavity.
- Blood does not allow the lungs to fully inflate.

Emergency Treatment

- Always start with BSI and ABC's.
- Provide High concentration of Oxygen.
- Seal Sucking Chest Wound with an occlusive dressing.
  - Treat as soon as discovered
  - Seal 3 sides with more than one layer of tape
  - Allows air to escape if pressure builds
  - Check for exit wound
- Assess and treat for shock if suspected

Abdominal Injuries

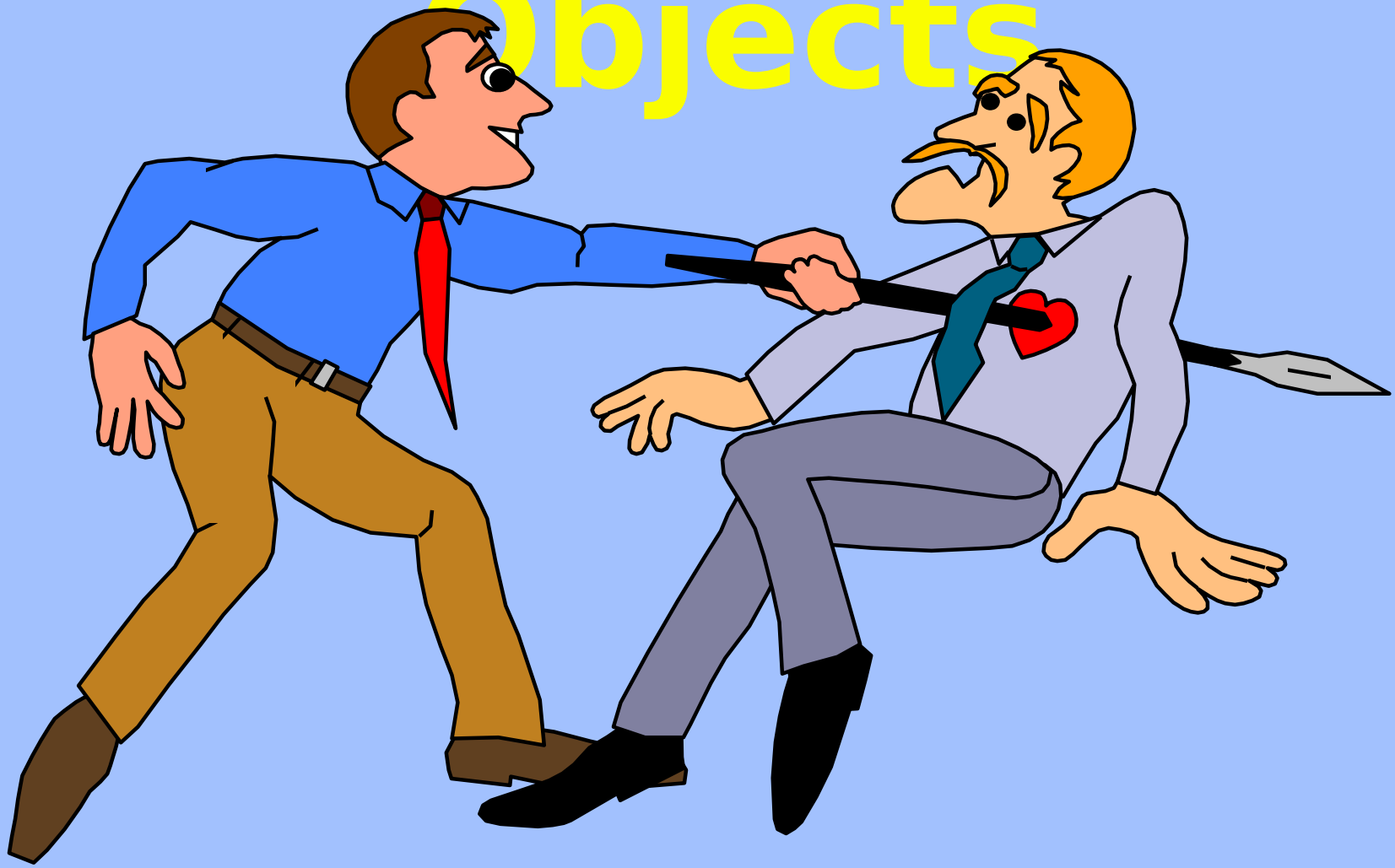
Evisceration

- Open wound in the abdominal cavity may expose internal organs. The organs may even protrude through the wound.

Emergency Treatment

- Always start with BSI and ABC's.
- Don't touch or move the exposed organs.
- Cover with moist sterile dressing
- Secure dressing in place
- Flex uninjured legs to remove pressure.

Impaled Foreign Objects



Four Rules to follow:

- Control bleeding
- Don't remove object (only one exception)
  - May cause severe bleeding
  - Nerve, blood vessel or muscle damage
  - Direct pressure for bleeding
  - Do not push on object
- Use bulky dressing to stabilize the object
  - Incorporate object into dressing
  - Motion reduced after bandage applied
- Transport promptly

Shorten long impaled objects if necessary.

- Slightest movement may cause severe pain, hemorrhage, tissue damage
- Before cutting
  - Make very secure
  - Minimize motion transmitted
  - Remember metal objects conduct heat

Neck injuries

- **Air Embolism - Air that is sucked into greater vessels which are left open to the environment. Air embolisms can block the flow of blood in the lungs and can cause cardiac arrest.**

Emergency Treatment

- Treat neck injuries with occlusive dressings to prevent air embolisms and control bleeding.
- Apply direct pressure but avoid compression of both carotid vessels at the same time.
- Unilateral pressure dressings can be applied by using the opposite axilla region.

Eye injuries

Foreign bodies in the Eye

- Never rub
- Irrigate with water
- DO NOT attempt to remove object on cornea
- Bandage both eyes with moist sterile dressing.

Lacerations and blunt trauma

- Profuse bleeding
- Controlled with gentle manual pressure
- Cover both eyes if lids don't cover eyes use moist dressing
- Laceration to the Globe
  - DO NOT apply pressure
  - Squeeze out Vitreous Humor collapse the globe

Contact lenses and Artificial Eyes

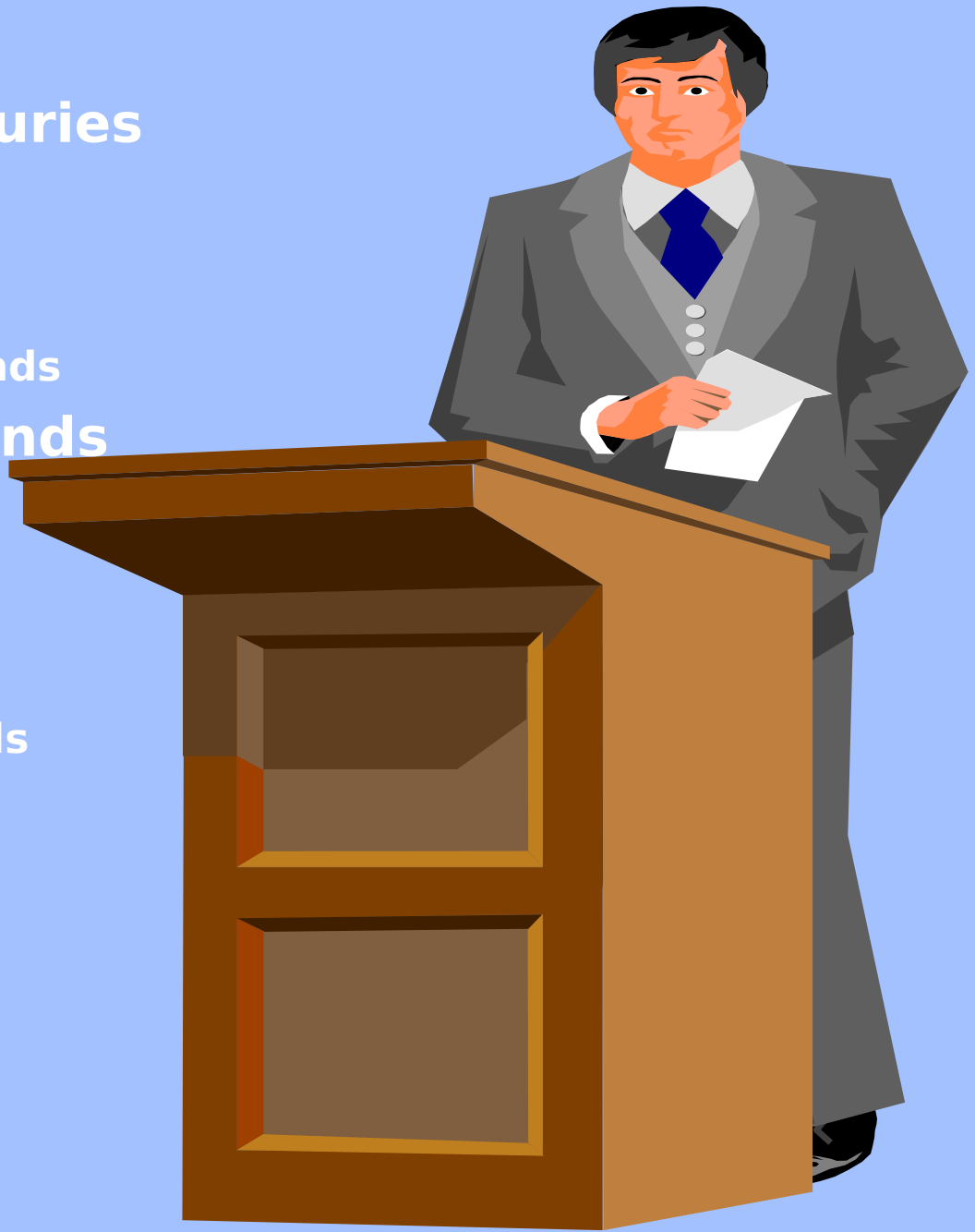
- Never attempt to remove contacts in the field.
- Record and report contact lenses and artificial eyes.
- Treat eye without concern to contacts or prosthesis.

Extruded eyeball

- Rare occasions following serious injury
- Treatment
  - Don't exert pressure or manipulate eye
  - Don't try to replace injured eye into orbit
  - Apply moist sterile dressing to injured eye
  - Cover injured eye with cup or shield
  - Cover other eye
  - Promptly transport patient quietly on back

Summary:

- **Closed Soft Tissue Injuries**
  - Contusion
  - Hematoma
  - Crushing Injuries
  - Treatment of Closed Wounds
- **Open Soft-Tissue Wounds**
  - Abrasions
  - Lacerations
  - Avulsion
  - Penetrating Wounds
  - Treatment of Open Wounds
- **Special Consideration**
  - Chest Injuries
  - Abdominal Injuries
  - Neck injuries
  - Eye injuries



QUESTIONS